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09/993,626	11/27/2001	Kiyohiro Yokoyama	2001_1766A	8244

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EXAMINER

NGUYEN, JIMMY H

ART UNIT	PAPER NUMBER
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2673

DATE MAILED: 02/24/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

09/993,626

Applicant(s)

YOKOYAMA ET AL.

Examiner

Jimmy H. Nguyen

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 08 August 2005.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 21-42 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 21-42 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☒ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_\_
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_

### DETAILED ACTION

1. This Office Action is made in response to applicant's amendment filed on 08/08/2005.

Claims 21-42 are currently pending in the application. An action follows below:

#### *Priority*

2. Acknowledgment is made of applicant's claim for foreign priority based on an application filed in Japan on 27 November 2000. It is noted, however, that applicant has not filed a certified copy of the 2000-359678 application as required by 35 U.S.C. 119(b).

3. Acknowledgment is made of applicant's claim for foreign priority based on an application filed in Japan on 16 October 2001. It is noted, however, that applicant has not filed a certified copy of the 2001-318587 application as required by 35 U.S.C. 119(b). Acknowledgment is made of applicant's claim for foreign priority based on an application filed in Japan on 26 November 2001. It is noted, however, that applicant has not filed a certified copy of the 2001-359390 application as required by 35 U.S.C. 119(b). ***Claim Rejections - 35 USC § 103***

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

6. Claims 21, 23, 27-31, 33-36 and 38-41 are rejected under 35 U.S.C. 103(a) as being unpatentable over Sato et al. (US 6,507,337 B1) hereinafter Sato and further in view of Lanciano (US 4,329,620).

In regard to claim 21, Sato discloses a glass touch panel comprising a pair of transparent substrates, a touch substrate and a display substrate. Each of the upper and lower substrates has

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a transparent conductive film surface and is opposed to the other at the transparent conductive film surface. See column 1, lines 27-30, which discloses that the “surface of each substrate, that is facing the other substrate, is covered by a thin layer of indium/tin oxide as a transparent conductive layer. The lower transparent substrate is glass as disclosed in column 1, lines 26-27, “The display substrate is made of soda-lime or tempered glass”. The display substrate is understood to be the lower substrate, and the touch substrate is understood to be the upper. The upper substrate, unlike the claimed invention, is made of polyethylene terephthalate, polycarbonate, or poly methacrylate resin that is transparent (see column 1, lines 23-24), instead of glass. In column 2, lines 43-49, Sato discloses that using glass as a substrate is well known but may make it “impossible to keep the glass from being broken when strong mechanical impact is given... The glass should be replaced with a transparent resin film, such as polycarbonate or polymethyl methacrylate, that is relatively thin and has a proper rigidity.” It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the invention of Sato by using glass for the substrate. One would have been motivated to make such a change in order to have a simpler substrate without concern for mechanical impact, particularly in applications where the drawbacks of glass are not a concern or where simpler cheaper material is preferred. Accordingly, the difference between the modified touch panel of Sato and the invention of claim 21 is that Sato does not bond the two substrates with an adhesive in which fine particles having hygroscopic features are mixed, with the fine particles being of a material different than a material of the adhesive.

However, Lanciano discloses an interposed adhesive layer (34) used to bond two glass substrates (18, 32) (see Fig. 1, col. 3, lines 20-24 and lines 58-63). Lanciano further teaches the

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interposed adhesive layer (34) comprising a mixture of epoxy resin (corresponding to the claimed adhesive) and a hygroscopic curing agent (see abstract). Moreover, Lanciano hygroscopic curing agent inherently comprises hygroscopic particles. It would have been obvious to one of ordinary skill in the art at the time the invention was made to replace the Sato adhesive with an adhesive mixed with hygroscopic particles, as taught by Lanciano, because this would prevent moisture penetration which causes deterioration of the device (see col. 2, lines 42-57).

In regard to claim 23, Lanciano further teaches the hygroscopic curing agent (i.e., the fine particles) mixed in the epoxy resin at a weight ration of 6% to 10% (see col. 2, lines 34-37).

In regard to claim 27, Lanciano also teaches the adhesive comprises a thermosetting epoxy sealant (see col. 4, line 66 through col. 5, line 18).

In regard to claim 28, Sato discloses in column 13, lines 56-58 that the “visible light transmittance at a wavelength of 550 nm is shown in the rightmost column of Table 3 for each of the films F5 to F10.” Referring to Table 3, transmittance values of between 90.5% and 95.2% are disclosed. He further discloses in Table 2 that the transmittance or touch panels F3TP and F4TP are 90%. These values are greater than 85%.

In regard to claim 29, Sato discloses, in column 5, lines 37-38, that a wide operating temperature ranged from -40°C to 100°C can be provided for the touch panel. This range of temperatures includes the temperature range of -30 to 65°C. In column 10, line 57, Sato further discloses the condition of a humidity of 90%, or 90% RH.

In regard to claim 30, see rejection of claim 29. The wide operating temperature ranging from -40°C to 100°C includes the temperature range of -40°C to 85°C. It is understood that a

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touch panel with such operating temperature characteristics would have equivalent storing temperature characteristics. Also, 90% RH is “95% RH or less.”

In regard to claim 33, Sato in view of Lanciano discloses a glass touch panel similar to that of the claimed invention. See rejection of claim 21 for similarities. Sato in view of Lanciano differs from that claimed in claim 33 in that the thickness of the two substrates in Sato’s invention are not disclosed. However, these thicknesses are conventional and readily available. As evidence of this, see page 6 of the applicant’s specification, first sentence underneath Table 1, stating, “Commercial products can be used for such glass having the above properties.” The “above properties” include the thickness of the glass. It would have been obvious to one of ordinary skill in the art at the time to modify the invention of Sato in view of Lanciano by using glass of thickness specified in claim 33. One would have been motivated to make such a change in order to use glass that is already commercially available, and these thicknesses are typical of the glass used in those types of systems.

In regard to claim 34, Sato discloses in column 3, lines 16-18, that the “transparent conductive layers are formed according to the vacuum film-thinning technique such as the sputtering method”. It is understood that sputtering deposits vapor in a predetermined shape.

In regard to claim 36, Sato discloses in Table 2 that the linearities for touch panels F2TP, F3TP and F4TP are 3.5% or less.

In regard to claims 31, 35, 38 and 39, Sato in view of Lanciano does not expressly teach a variety of touch panels tested under conditions, as presently recited in these claims. However, Official Notice is taken that both the concept and the advantages of utilizing a variety of touch panels tested under conditions, as presently claimed, in order to produce an optimal touch panel.

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In regard to claim 40, Sato in view of Lanciano discloses a touch panel much like that of the claimed invention. See rejection of claim 21 for similarities. However, Sato does not disclose that the touch panel's transparent glass substrate is 2 to 20 inches. This size has no disclosed criticality according to the specification of the claimed invention. It would have been obvious to one of ordinary skill in the art at the time the invention was made to make the transparent glass substrate of any size, for instance 2 to 20 inches. One would have been motivated to make such a change in order to have a touch panel that is of operable size and that is suitable for the application for which the panel is intended.

In regard to claim 41, Sato in view of Lanciano discloses all the claimed limitation of this claim except that Lanciano does not expressly teach the material of hygroscopic or fine particles being silica, as presently claimed. However, Official Notice is taken that both the concept and the advantages of using the silica particle as the hygroscopic particle are well known and expected in the art. It would have been obvious to use the silica particle as the hygroscopic particle in the panel of Sato in view of the teaching in the Lanciano reference because the silica particle are known to exhibit high hygroscopic feature.

7. Claims 22 and 42 are rejected under 35 U.S.C. 103(a) as being unpatentable over Sato in view of Lanciano, and further in view of Iwanaga et al (US 2001/0030730 A1), hereinafter Iwanaga.

As per claim 22, Sato in view of Lanciano discloses all the claimed limitations of claim 22 except for a diameter of the fine particle being at most 50  $\mu\text{m}$  as presently claimed. However, Iwanaga discloses a liquid crystal display on page 7, paragraph [0130] that "hygroscopic particle of polymer 5 are also printed on the periphery of the substrate 1A to form a dampproof seal." In

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paragraph [0024], Iwanaga further discloses that the “polymer particles may be in the form of fine particles and...may have an average diameter of 3 micrometers”. It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the touch panel of Sato in view of Lanciano by using hygroscopic particles less than 50  $\mu\text{m}$ . in diameter, or in particular, 3  $\mu\text{m}$  in diameter, as in the invention of Iwanaga. One would have been motivated to make such a change in order to form a dampproof seal.

As per claim 42, this claim is similar to a combination of claims 41, 22 and 23, this claim is therefore rejected for the same reasons as set forth in these claims.

8. Claims 24-26 are rejected under 35 U.S.C. 103(a) as being unpatentable over Sato in view of Lanciano, and further in view of Kojima et al. (JP 60-220318), hereinafter Kojima.

In regard to claim 24, Sato in view of Lanciano discloses all the claimed limitations of this claim except that a silver electrode mixed with glass fibers is disposed at a predetermined position on an outer periphery of the transparent conductive film. However, as noting in Fig. 1 and abstract, Kojima discloses that a silver electrode (silver paste 4) mixed with glass fibers (5) and disposed at a predetermined position on an outer periphery of the transparent conductive film (3) would prevent the defects of conduction in electrode transfer. Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to provide the silver electrode mixed with glass fibers at a predetermined position on an outer periphery of the transparent conductive film, in the panel of Sato, in view of the teaching in the Kojima reference because this would prevent the defects of conduction in electrode transfer.

In regard to claim 25, Kojima further teaches the glass fibers mixed in the silver electrode at a weight ratio about 1% to 10% (see abstract).

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In regard to claim 26, Sato in view of Lanciano and Kojima discloses all the claimed limitations of this claim except for an electric resistivity of  $5.0 \times 10^{-4} \Omega\text{m}$ . However, Official Notice is taken that both the concept and the advantages of using a silver paste having an electric resistivity of  $5.0 \times 10^{-4} \Omega\text{m}$  to provide good conductive bonding and bending resistance of the silver paste are well-known in the art. Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to use the silver paste having an electric resistivity of  $5.0 \times 10^{-4} \Omega\text{m}$  in order to provide good conductive bonding and bending resistance of the silver paste, thereby preventing the glass touch panel from damage.

9. Claim 32 is rejected under 35 U.S.C. 103(a) as being unpatentable over Sato in view of Lanciano, and further in view of Maeda et al. (US 6,310,614 B1), hereinafter Maeda.

In regard to claim 32, Sato further discloses in column 7, lines 2-7, and referring to figure 1, that “dot-shaped spacers 30, for example, are provided on the surface of the conductive layer 25 at regular distances, such as every few millimeters. The spacers 30 are made of light-hardening acrylic resin, and each spacer is about 10  $\mu\text{m}$  in height and 10  $\mu\text{m}$  to 50  $\mu\text{m}$  in diameter”. Hence the dot spacers are made of thermosetting resin, with a diameter from 20 to 100  $\mu\text{m}$ . “Every few millimeters” is understood to be from 2 to 4 mm. Accordingly, Sato in view of Lanciano discloses all the claimed limitations except for the dot spacers of the touch panel do not have a height that is from 3 to 6  $\mu\text{m}$ . However, Maeda discloses in column 6, lines 13-17, and referring to figure 2, a touch panel, in which “dot spacers 6 have a height of about 5 microns, which is less than a height of a gap d between movable conductor layer 4 and fixed conductor layer 5. Dot spacers prevent accidental contact between movable conductor layer 4 and fixed conductor layer 5.” It would have been obvious to one skilled in the art at the time the invention

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was made to modify the height of the Sato spacer, in view of the teaching in the Maeda reference, because this would have a height less than the distance between the two panels, in order to prevent accidental contact between them.

10. Claim 37 is rejected under 35 U.S.C. 103(a) as being unpatentable over Sato in view of Lanciano, and further in view of Tannas, Jr. 4,017,848.

In regard to claim 37, Sato in view of Lanciano discloses all the claimed limitations except that the bounce by an ordinary finger operation is at most 10 msec. However, Tannas, Jr. discloses a bounce by a finger operation on the order of 10 milliseconds illustrates the high quality of switches (see col. 5, lines 6-12). Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the glass panel of Sato such that a bounce by a finger operation on the order of 10 milliseconds in order to obtain a high quality of the touch panel, as taught by Tannas, Jr.

11. Claims 21, 23, and 27-41 are rejected under 35 U.S.C. 103(a) as being unpatentable over Yokoyama et al. (JP 10-133817, please refer to a copy of English translation for the following rejection) hereinafter Yokoyama and further in view of Lanciano (US 4,329,620).

In regard to claim 21, Yokoyama discloses a glass touch panel (see Fig. 2) comprising a first transparent glass substrate (1a) having thereon a first transparent conductive film (2a); and a second transparent glass substrate (1b) having thereon a second transparent conductive film (2b) that opposes said first transparent conductive film (2b), wherein said first transparent glass substrate, as a touch input part, and said second transparent glass substrate are bonded to one another via an adhesive (5) mixed with glass fibers (see abstract). Accordingly, Yokoyama

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discloses all the claimed limitations of claim 21 except for the adhesive mixed with fine particles having hygroscopic features, rather than mixed with glass fibers as taught by Yokoyama.

However, Lanciano discloses an interposed adhesive layer (34) used to bond two glass substrates (18, 32) (see Fig. 1, col. 3, lines 20-24 and lines 58-63). Lanciano further teaches the interposed adhesive layer (34) comprising a mixture of epoxy resin (corresponding to the claimed adhesive) and a hygroscopic curing agent (see abstract). Moreover, Lanciano hygroscopic curing agent inherently comprises hygroscopic particles. It would have been obvious to one of ordinary skill in the art at the time the invention was made to replace the Sato adhesive mixed with glass fibers with the adhesive mixed with hygroscopic particles, as taught by Lanciano, because this would prevent moisture penetration which causes deterioration of the device (see col. 2, lines 42-57).

In regard to claim 23, Lanciano further teaches the hygroscopic curing agent (i.e., the fine particles) mixed in the epoxy resin at a weight ration of 6% to 10% (see col. 2, lines 34-37).

In regard to claim 27, Lanciano also teaches the adhesive comprises a thermosetting epoxy sealant (see col. 4, line 66 through col. 5, line 18).

In regard to claims 28-40, all the limitations of these claims are read in Yokoyama reference. See paragraphs [0006] - [[0024] of the copy of English translation.

In regard to claim 41, Sato in view of Lanciano discloses all the claimed limitation of this claim except that Lanciano does not expressly teach the material of hygroscopic or fine particles being silica, as presently claimed. However, Official Notice is taken that both the concept and the advantages of using the silica particle as the hygroscopic particle are well-known and expected in the art. It would have been obvious to use the silica particle as the hygroscopic

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particle in the glass touch panel of Yokoyama in view of the teaching in the Lanciano reference because the silica particle are known to exhibit high hygroscopic feature.

12. Claims 22 and 42 are rejected under 35 U.S.C. 103(a) as being unpatentable over Yokoyama in view of Lanciano, and further in view of Iwanaga et al (US 2001/0030730 A1), hereinafter Iwanaga.

As per claim 22, Yokoyama in view of Lanciano discloses all the claimed limitations of claim 22 except for a diameter of the fine particle being at most 50  $\mu\text{m}$  as presently claimed. However, Iwanaga discloses a liquid crystal display on page 7, paragraph [0130] that “hygroscopic particle of polymer 5 are also printed on the periphery of the substrate 1A to form a dampproof seal.” In paragraph [0024], Iwanaga further discloses that the “polymer particles may be in the form of fine particles and...may have an average diameter of 3 micrometers”. It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the glass touch panel of Yokoyama in view of Lanciano by using hygroscopic particles less than 50  $\mu\text{m}$  in diameter, or in particular, 3  $\mu\text{m}$  in diameter, as in the invention of Iwanaga. One of ordinary skill in the art would have been motivated to make such a change in order to form a dampproof seal.

As per claim 42, this claim is similar to a combination of claims 41, 22, and 23, this claim is therefore rejected for the same reasons as set forth in these claims.

13. Claims 24-26 are rejected under 35 U.S.C. 103(a) as being unpatentable over Yokoyama in view of Lanciano, and further in view of Kojima et al. (JP 60-220318), hereinafter Kojima.

In regard to claim 24, Yokoyama in view of Lanciano discloses all the claimed limitations of this claim except that a silver electrode mixed with glass fibers is disposed at a

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predetermined position on an outer periphery of the transparent conductive film. However, as noting in Fig. 1 and abstract, Kojima discloses that a silver electrode (silver paste 4) mixed with glass fibers (5) and disposed at a predetermined position on an outer periphery of the transparent conductive film (3) would prevent the defects of conduction in electrode transfer. Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to provide the silver electrode mixed with glass fibers at a predetermined position on an outer periphery of the transparent conductive film, in the glass touch panel of Yokoyama, in view of the teaching in the Kojima reference, because this would prevent the defects of conduction in electrode transfer, as taught by Kojima.

In regard to claim 25, Kojima further teaches the glass fibers mixed in the silver electrode at a weight ratio about 1% to 10% (see abstract).

In regard to claim 26, Yokoyama in view of Lanciano and Kojima discloses all the claimed limitations of this claim except for the silver paste's electric resistivity of  $5.0 \times 10^{-4} \Omega\text{m}$ . However, Official Notice is taken that both the concept and the advantages of using a silver paste having an electric resistivity of  $5.0 \times 10^{-4} \Omega\text{m}$  to provide good conductive bonding and bending resistance of the silver paste are well-known in the art. Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to utilize the silver paste having an electric resistivity of  $5.0 \times 10^{-4} \Omega\text{m}$  in order to provide good conductive bonding and bending resistance of the silver paste, thereby preventing the glass touch panel from damage.

***Response to Arguments***

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14. Applicant's arguments, see pages 6-8, of the amendment filed on 08/08/2005, with respect to independent claim 21 and dependent claims 22, 23, and 42, have been considered but are moot in view of the new ground(s) of rejection above.

***Conclusion***

15. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jimmy H. Nguyen whose telephone number is 571-272-7675.

The examiner can normally be reached on Monday - Thursday, 8:00 a.m. - 5:00 p.m..

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Bipin Shalwala can be reached at 571-272-7681. The fax phone number for the organization where this application or proceeding is assigned is (571) 273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

JHN  
February 17, 2006



Jimmy H. Nguyen  
Primary Examiner  
Art Unit: 2673